

Applicant further acknowledges the Examiner's statement in paragraph 3 of the Office Action wherein the Examiner expresses the belief that Applicant has made an admission on page 3 of the specification concerning the conventionality of retortable EVOH. It is respectfully asserted that Applicant makes no such admission on page 3 of the specification. This portion of the specification does nothing more than to indicate that techniques are known to provide a modified EVOH to make it retortable. Even in these examples where retortable EVOH remains clear after retort, such retortable EVOH still exhibits moisture sensitivity as well as retort shock, in which the moisture is trapped in EVOH layer and thus worsens the oxygen barrier. There is nothing in the applied art which indicates that such retortable EVOH is in any way compatible with an oxidizable epoxy or anhydride functional polybutadiene and a metal salt catalyst. While retortable EVOH may be known in the art, there is simply nothing in Tai, et al and Cahill, et al combined with the mere existence of retortable EVOH to teach or suggest an oxygen-scavenging polymer composition that consists essentially of at least one retortable ethylene vinyl alcohol copolymer, at least one epoxy or anhydride functional polybutadiene and at least one metal salt catalyst.

Claims 1, 4-13, 15-43, 45-46 and 48-50 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tai, et al. (EPO 1033080 A2) in view of Cahill, et al. (U.S. 6,436,308). It is respectfully submitted that the rejection is not well taken.

The inventions provides an oxygen-scavenging polymer composition consisting essentially of:

- a) at least one ethylene vinyl alcohol copolymer;
- b) at least one oxidizable epoxy or anhydride functional polybutadiene; and
- c) at least one metal salt catalyst.

Tai et al. teaches an oxygen absorptive resin composition comprising a combination of a thermoplastic resin which may be a copolymer of an aromatic vinyl compound and a

diene compound, a gas barrier resin which may be an ethylene vinyl alcohol (EVOH) and a metal salt catalyst. However, as the Examiner admits, Tai et al. fails to teach a composition including a functional polydiene, or more particularly an *epoxy or anhydride functional polybutadiene*. Rather, the reference discloses non-functional diene compounds used for synthesis of the thermoplastic resin including isoprene, butadiene, 2-ethyl butadiene, and 2-butyl butadiene.

The Examiner attempts to overcome this deficiency by citing Cahill, et al. While Cahill, et al. does generally pertain to packaging articles containing oxygen scavengers, Cahill, et al. does not show the use of a polybutadiene-maleic anhydride adduct and furthermore does not show an admixture with ethylene vinyl alcohol copolymers. Contrary to the examiner's position, Cahill, et al do not even show the existence of an epoxy or anhydride functional polybutadiene, much less do they have anything whatsoever to do with a hypothetical composition including ethylene vinyl alcohol copolymers.

With regard to Cahill, et al, the Examiner points to col. 5, lines 27-54 for the use of maleic anhydride modified polybutadiene in copolymers that scavenge oxygen. This is incorrect. Cahill, et al form an oxygen scavenging copolymer formed by reacting two parts, an oxygen scavenging moiety (OSM) and an addition polymer. These resultant oxygen scavenging copolymers may be added to packaging polymers such as polyolefins. A careful reading of Cahill at column 5, lines 27, et seq. shows that they employ oxygen scavenging moieties including polyolefins such as polypropylene, poly(4-methyl)-1-pentene, and polybutadiene. There is no disclosure whatsoever of an epoxy or anhydride functional polybutadiene. Cahill, et al further mention the use of polypropylene oxide as a part of a polyaddition polymer. Starting at line 45 they mention that polyolefins have no esterification sites and that esterification sites would have to be added to such polyolefins such as with maleic anhydride, before they can be used to form polyaddition polymers. Thus while there is a suggestion of reacting a polyolefin with maleic anhydride, there is no suggestion of forming an anhydride modified butadiene.

Referring to column 12, lines 18-20 of Cahill, et al., addition polymers are disclosed to be polyesters, polyamides, polysulfones, polyols, polyethers and polyketones. The addition polymers may have esterification sites. If none are present, said addition polymers may be provided with esterification sites with maleic anhydride. Accordingly, Cahill, et al. teaches that their addition polymers may be made anhydride functional, not the oxygen scavenging moiety, i.e. Cahill does not teach or suggest the introduction of esterification sites into polybutadiene to enhance oxygen scavenging. In other words, Cahill, et al. does not teach or suggest that polybutadiene may be made anhydride functional. Furthermore, there is no teaching or suggestion in Cahill of the hypothetical formation of an anhydride functional polybutadiene when a polybutadiene oxygen scavenger would be reacted with an anhydride functional addition polymer, since the reference does not indicate that the resulting oxygen scavenging copolymer has any anhydride functionality. Even assuming that such were hypothetically the case, and such is not admitted, there is no suggestion that such result would be compatible with or suitable for combination with an ethylene-vinyl alcohol copolymer for producing an oxygen-scavenging polymer composition.

There is simply no suggestion from either reference that they could or should be combined, and even if so hypothetically combined, there is simply no resulting oxygen-scavenging polymer composition consisting essentially of: a) at least one ethylene vinyl alcohol copolymer; b) at least one oxidizable epoxy or anhydride functional polybutadiene; and c) at least one metal salt catalyst.

For a *prima facie* case of obviousness to be established, the applied prior art must be such that it would have provided one of ordinary skill in the art with both a motivation to carry out the claimed invention and a reasonable expectation of success in doing so. See In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); In re O'Farrell, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988). Neither are present in the combination of Tai, et al. with Cahill, et al.

While Cahill, et al show non-ethylene vinyl alcohol oxygen barrier polymers and a metal salt catalyst, there is also no oxidizable epoxy or anhydride functional polybutadiene from Cahill, et al, nor any suggestion that such could or should be substituted into in the composition of Tai, et al. There is nothing to suggest that an oxidizable epoxy or anhydride functional polybutadiene would be compatible with a ethylene vinyl alcohol oxygen barrier polymers and a metal salt catalyst. There is nothing to suggest that any benefit would emerge from a combination of an ethylene vinyl alcohol oxygen polymer, a metal salt catalyst and a oxidizable epoxy or anhydride functional polybutadiene. There is nothing here to motivate one skilled in the art to form an overall composition comprising a ethylene vinyl alcohol copolymer; an oxidizable epoxy or anhydride functional polybutadiene; and a metal salt catalyst. While it might be desirable in to make useful oxygen-scavenging polymer composition articles, this is not the type of motivation required by 35 U.S.C. 103. The motivation required would be to find a combination comprising a ethylene vinyl alcohol copolymer; an oxidizable epoxy or anhydride functional polybutadiene; and a metal salt catalyst. This combination is absent from any combination of the applied references. Further, the belief that one skilled in the art **could** form the claimed composition does not suggest that one **should** form such a composition to obtain the disclosed benefits. It is submitted that the examiner is reconstructing the art in light of applicant's disclosure.

Additionally, while Tai, et al. show the existence of a hydrotalcite clay, such is in a completely different context. Tai et al. teaches an oxygen absorptive resin composition comprising a combination of a thermoplastic resin which may be a copolymer of an aromatic vinyl compound and a diene compound, a gas barrier resin which may be an ethylene vinyl alcohol (EVOH) and a metal salt catalyst. However, Tai et al. fails to teach a composition including a functional polydiene, or more particularly an *epoxy or anhydride functional polybutadiene*. No combination of Tai, et al. and Cahill, et al. teach or suggest an oxygen-scavenging polymer composition including each of a) at least one ethylene vinyl alcohol copolymer; b) at least one oxidizable epoxy or anhydride functional polybutadiene; c) at least one metal salt catalyst, and d) a clay.

Appellants submit that the Examiner is looking beyond the teachings of the references. A reference has to offer sufficient motivation for one skilled in the art to achieve the desired result. In the instant case, the motives in the references, as disclosed by the practices therein, are quite different from those in the instant invention. The present invention, therefore, is not made obvious by the combination the Examiner has suggested, and the 35 U.S.C. 103 rejection should, therefore, be withdrawn. "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." In re Geiger, 2 U.S.P.Q.2d 1276, 1278 (CAFC 1987). There is no motivation to combine that with the other references to arrive at the instant invention. The Examiner appears to be going to great lengths to locate and try to interrelate the references, but no matter how one applies or combines these references they do not teach using the specific combination of components to attained the demonstrated benefits. The invention cannot be deemed unpatentable merely because, in a hindsight attempt to reconstruct the invention, one can find elements of it in the art; it must be shown that the invention as a whole was obvious at the time the invention was made without knowledge of the claimed invention. 35 U.S.C. 103. When selective combination of prior art references is needed to make an invention seem obvious, there must be something in the art to suggest that particular combination other than hindsight gleaned from the invention itself, something to suggest the desirability of the combination. Uniroyal, Inc. v. Rudkin-Wiley Corp., 5 U.S.P.Q.2d 1434, 1438 (CAFC 1988). Such a suggestion is absent in the cited references.

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); Schneck v. Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983). It is respectfully asserted that the invention as a whole would not have been obvious to one of ordinary skill in the art at the

time the invention was made. For the foregoing reasons it is submitted that the rejection is incorrect and should be withdrawn.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,



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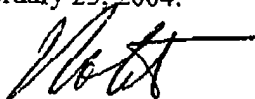
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